



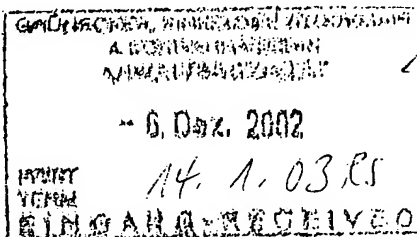
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La Haye
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EP24020-011/zp

Anmeldung Nr./Application No./Demande n°//Patent Nr./Patent No./Brevet n°
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Anmelder/Applicant/Demandeur//Patentinhaber/Proprietor/Titulaire

MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.

021

COMMUNICATION

The European Patent Office herewith transmits the supplementary partial European search report under Rule 46(1) EPC relating to the above-mentioned European patent application.

Copies of the documents cited in the search report are enclosed.

The applicant's attention is drawn to the following:

The search Division informs the applicant that if the European search report is also to cover inventions other than the invention first mentioned in the claims, a further search fee must be paid for each of these inventions, within ONE MONTH after notification of this communication.

If the application has been filed up to 30 June 1999, the search fee in force before 01 July 1999 (EUR 869,-) or the equivalent applicable on the date of payment is payable.

This applies also to the search fees requested under Rule 46(1) EPC.

See also OJ EPO 06/1999, 405.

Moreover, the Search Division considers that the present European patent application does not comply with the provisions of the European Patent Convention to such an extent that it is not possible to carry out a meaningful search into the state of the art on the basis of some of the claims; reference is made to sheet C, which is attached to the search report.

☐ The abstract was modified by the Search Division and the definitive text is attached to the present communication.

☒ Additional set(s) of copies of the documents cited in the European search report is (are) attached as well.

Note to users of the automatic debiting procedure:

Unless the EPO receives prior instructions to the contrary, the search fee(s) will be debited on the last day of the period for payment. For further details see the Arrangements for the automatic debiting procedure, Supplement to OJ EPO 02/1999.

REGISTERED LETTER





European Patent
Office

**SUPPLEMENTARY
PARTIAL EUROPEAN SEARCH REPORT**
under Rule 46, paragraph 1 of the European Patent
Convention

Application Number

EP 00 96 4666

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X J	EP 0 874 359 A (KONISHIROKU PHOTO IND) 28 October 1998 (1998-10-28)	1,2,9, 11,14,20	G11B7/125 G11B7/135
Y	* page 2, line 42 - line 58 *	3,4,12, 13,21,22	
	* page 5, line 19 - page 6, line 2 *		
	* page 7, line 39 - page 8, line 8 *		
	* page 9, line 32 - page 10, line 53 *		
	* figures 6A-6B,8A-8D,12A-12D *		
A	* page 4, line 5 - line 25 *	19	

Y J	EP 0 851 415 A (NIPPON ELECTRIC CO) 1 July 1998 (1998-07-01)	3,4,12, 13,21,22	
	* column 1, line 55 - column 2, line 48 *		
	* column 3, line 41 - line 57 *		
	* column 4, line 55 - column 5, line 55 *		
	* column 7, line 5 - line 45 *		

Y J	US 5 808 993 A (LEE SUNG-JIN) 15 September 1998 (1998-09-15)	12,13, 21,22	
	* column 2, line 7 - line 42 *		

P,A J	US 6 052 355 A (ARAI NORIKAZU ET AL) 18 April 2000 (2000-04-18)	1-4,9, 11-13	
	* the whole document *		

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LACK OF UNITY OF INVENTION			
The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:			
see sheet B			
The present partial European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims.			
Place of search		Date of completion of the search	Examiner
MUNICH		4 November 2002	Stemmer, M
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone			
Y : particularly relevant if combined with another document of the same category			
A : technological background			
O : non-written disclosure			
P : intermediate document			
T : theory or principle underlying the invention			
E : earlier patent document, but published on, or after the filing date			
D : document cited in the application			
L : document cited for other reasons			
& : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C23)



DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A J	EP 0 865 037 A (HITACHI LTD) 16 September 1998 (1998-09-16) * the whole document * ---	1-4,9, 11-13	
A J	EP 0 881 634 A (NIPPON ELECTRIC CO) 2 December 1998 (1998-12-02) * the whole document * ---	1-4,9, 11-13	
A J	JP 09 145995 A (KONICA CORP) 6 June 1997 (1997-06-06) * abstract * -----	1-4,9, 11-13	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-4, 9, 11-13, 14, 19-22

phase shift of the intermediate area

2. Claims: 5, 10

spherical aberration correction for thicker medium

3. Claim : 6

facing the recording medium

4. Claims: 7, 8

phaseshift of the peripheral area

1. The following documents D1-D3 are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1:	EP-A-0 874 359 (KONISHIROKU PHOTO IND) 28 October 1998
(1998-10-28)	
D2:	EP-A-0 851 415 (NIPPON ELECTRIC CO) 1 July 1998
(1998-07-01)	
D3:	US-A-5 808 993 (LEE SUNG-JIN) 15 September 1998
(1998-09-15)	

2. The subject-matter of claims 1-2, 9, 11, 14-16, 20 is not new in the sense of Article 54(1) and (2) EPC, the subject-matter of the claims 3, 4, 12, 13, 17, 18, 21, 22 does not involve an inventive step in the sense of Article 56 EPC and therefore the requirements of Article 52(1) EPC are not met.

3. Document D1 discloses a convex lens for allowing luminous flux from a light source to converge to a first optical information recording medium having a predetermined thickness and a second optical information recording medium thicker than the first optical information recording medium (D1 p 4.1 5-25), characterized in that said convex lens comprises:

- a central area close to a central axis of said luminous flux;
- a peripheral area far from said central axis; and
- an intermediate area located midway between said central area and said peripheral area, and

the luminous flux converging onto an information recording surface of said first optical information recording medium is the luminous flux that has passed through said central area and said



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

peripheral area,

the luminous flux converging onto the information recording surface of said second optical information recording medium is the luminous flux that has passed through said intermediate area and said central area (D1 p 7 l 47-p 8 l 8), and

the phase of the luminous flux that passes through said intermediate area is shifted with respect to the phase of the luminous flux that passes through said central area (D1 p 9 l 32-38, the steps provided here create the phase shift).

The subject-matter of claim 1 is therefore not new (Article 54(1) and (2) EPC).

4. The feature disclosed in dependent claim 2 is also not new (D1 p 9 l 32-38, the steps provided here create the phase shift).

5. Concerning dependent claims 3 and 4 document D2 discloses a lens provided with phaseshifting means where the amount of phase shifted is less than 0.31 wavelength thus less than 111° with an example of 0.2 wavelength thus 72° . (D2 col 4 l 55- col 5 l 55). A person skilled in the art would combine teaching of D1 and D2 in order to solve the problem of aberration of disks of different thickness.

The solution proposed in claims 3 and 4 of the present application can therefore not be considered as involving an inventive step (Articles 52(1) and 56 EPC).

6. Concerning claim 9 - as far as it depends on any of above discussed claim 1-4- the values for the relation of the numerical apertures of the different zones are disclosed in D1 (D1, fig 6a-d, 8a-d, 12a-d). The subject-matter of claim 9 is therefore not new (Article 54(1) and (2) EPC) respectively not involving an inventive step (Articles 52(1) and 56 EPC).

7. Concerning Claim 11 - as far as the lens relates to any of above discussed claim 1-4 and 9 - the features of the optical pickup are already disclosed in D1 (D1 p 5 l 19 - p 6 l 2). The subject-matter of claim 9 is therefore not new (Article 54(1) and (2) EPC) respectively not involving an inventive step (Articles 52(1) and 56 EPC).

8. Concerning claim 12 - as far as the lens included in the pickup relates to any of above discussed claim 1-4 and 9 -, notwithstanding that the features of the circuit are not sufficiently disclosed neither supported by the description such a circuit is disclosed in D3 (D3 col 2 l 7-42) which in combination with the aforementioned documents D1 and D2 would provide the features disclosed in claim 12 which therefore can not be considered as involving an inventive step (Articles 52(1) and 56 EPC).

This applies mutatis mutandis to claim 13.

9. Concerning claim 14 the technical features identical with claim 1 are already disclosed in D1 (D1 p 4 l 5-25; p 7 l 47-p 8 l 8), D1 further discloses the feature of two light sources with different



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

wavelength (D1 p 5 l 29 -p 6 l 2) and of the intermediate surface provided with a diffraction grating is disclosed in (D1 p 10 l 44-53). Claim 14 is therefore not new (Article 54(1) and (2) EPC).

10. The term "good wavefront" used in claim 15 is vague and unclear and leaves the reader in doubt as to the meaning of the technical feature to which it refers, thereby rendering the definition of the subject-matter of said claim unclear (Article 84 EPC). For this reason claim 15 and its dependent claims 16-18 are not subject of the present search report.

11. The additional features of dependent claim 19 are not disclosed in their present form in any of the documents cited in the search report. It is suggested therefore that a new independent claim be drafted to include these features, bearing in mind that the features known in combination in D1 and D2 should be placed in the preamble of such a claim in accordance with Rule 29(1) EPC.

12. Concerning claim 20 - as far it depends on claim 14 - the features of the optical pickup are already disclosed in D1 (D1 p 5 l 19 - p 6 l 2). The subject-matter of claim 20 is therefore not new (Article 54(1) and (2) EPC) respectively not involving an inventive step (Articles 52(1) and 56 EPC).

13. Concerning claim 21 - as far as the lens included in the pickup relates to above discussed claim 14 -, notwithstanding that the features of the circuit are not sufficiently disclosed neither supported by the description such a circuit is disclosed in D3 (D3 col 2 l 7-42) which in combination with the aforementioned documents D1 and D2 would provide the features disclosed in claim 21 which therefore can not be considered as involving an inventive step (Articles 52(1) and 56 EPC).

This applies mutatis mutandis to claim 22.

14. The above discussed claims 1-4, 9, 11-13, 14, 19-22 are considered to belong to a common inventive concept (catchword I: "phase shift of the intermediate area"), additional inventive concepts are disclosed in the present application.

15. Independent claim 5 stipulates that the spherical aberration of the lens is optimized for a recording medium thicker than the second one (which is the thicker of the two recording media) (catchword II: "spherical aberration correction for thicker medium"). The purpose is to reduce jitter variations due to phase jitter of the intermediate area (cf p 28 l 14-28).

16. Independent claim 6 stipulates that the intermediate area that separates said central area from said peripheral area is formed on a surface of the lens, the surface facing said optical information recording medium (catchword III: "facing the recording medium"). The



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

purpose is to set the intermediate area on the side of the second surface with smaller curvature makes it possible to reduce the transition area necessary to perform glass press molding (cf p 30 l 24 - p 31 l 7).

17. Independent claim 7 stipulates that said central area is designed so that the phase of luminous flux that has passed through the area thereof is substantially shifted with respect to the phase of the luminous flux that has passed through said peripheral area (catchword IV: "phaseshift of the peripheral area"). The purpose is to reduce level differences in lens molding (cf p 35 l 5 - p 36 l 15).

18. The application lacks unity within the meaning of Article 82 EPC. The Examining Division considers that the following separate inventions or groups of inventions are not so linked as to form a single general inventive concept:

(i) the "phase shift of the intermediate area" concept of claims 1-4; 9 dependent on any of claims 1-4; 11-13 dependent on any of claims 1-4, 9; 14, 19-22.

(ii) the "spherical aberration correction for thicker medium" concept of claims 5; 10; 9 dependent on 5; 11-13 dependent on 5, 10, 9 dependent on 5.

(iii) the "facing the recording medium" concept of claims 6; 9 dependent on 6; 11-13 dependent on 6, 9 dependent on 6.

(iv) the "phaseshift of the peripheral area" concept of claims 7; 8; 9 dependent on 7 or 8; 11-13 dependent on 7 or 8, 9 dependent on 7 or 8.



European Patent
Office

INCOMPLETE SEARCH
SHEET C

Application Number
EP 00 96 4666

Claim(s) searched completely:
1-4,9,14,19-22

Claim(s) not searched:
15-18

Reason for the limitation of the search:

The term "good wavefront" is vague and unclear, no further explanation of this term is provided in the description.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. 96 4666

EP 00 96 4666

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

04-11-2002

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